

## COMBINED USE OF SOFT SYSTEMS METHODOLOGY AND COMPLEXITY METHODOLOGY: THE EXAMPLE OF CORPORATE SOCIAL RESPONSIBILITY

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### Abstract

Starting from the deficiencies of the application of single system methodology in dealing with the management problem situations, the paper discusses a possible combined use of Soft Systems Methodology (SSM), which belongs to the interpretive paradigm, and Complexity Methodology (CM), as a functionalist systems methodology, in structuring complex-pluralist problem areas. Respecting the characteristics of corporate social responsibility (CSR), combined application of these methodologies is illustrated through a hypothetical example of CSR management in the ABC company. The paper shows that if the SSM is implemented as dominant, and CM, as a methodology that supports it in managing problem situations in enterprises, certain deficiencies in their independent application will be eliminated. Despite certain limitations, the paper provides findings about various important open issues in *systems science* and *management science*, such as the possibility of combining different systems methodologies, particularly the methodologies belonging to different paradigms. Besides, a combined use of these two methodologies has not been explored enough yet.

**Key words:** managing problem situations, Soft Systems Methodology, Complexity Methodology, combining methodologies, corporate social responsibility.

## КОМБИНОВАНО КОРИШЋЕЊЕ МЕТОДОЛОГИЈЕ СОФТ СИСТЕМА И МЕТОДОЛОГИЈЕ КОМПЛЕКСНОСТИ: ПРИМЕР УПРАВЉАЊА ДРУШТВЕНОМ ОДГОВОРНОШЋУ ПРЕДУЗЕЋА

### Апстракт

Полазећи од мањкавости индивидуалне примене системских методологија у бављењу управљачким проблемским ситуацијама, у раду је разматрана могућа комбинована примена Методологије софт система (МСС), која припада интерпретативној парадигми, и функционалистичке Методологије комплексности (МК) у структурирању комплексно-плуралистичких проблемских подручја.

Поштујући својства друштвено одговорног пословања (ДОП) предузећа, комбинована примена наведених методологија представљена је кроз хипотетички пример управљања друштвеном одговорношћу предузећа АБЦ. Рад показује да уколико се МСС примени као доминантна, а МК као методологија подршке у управљању проблемским ситуацијама у предузећима, биће отклоњене одређене мањкавости њихове индивидуалне примене. Упркос неизбежним ограничењима, рад пружа и одређени допринос истраживању важних питања у *systems science*-у и *management science*-у, као што су могућности комбиновања различитих системских методологија, а посебно методологија које припадају различитим парадигмама. Осим тога, комбиновање ове две методологије до сада није довољно истраживано.

**Кључне речи:** управљање проблемским ситуацијама, Методологија софт система, Методологија комплексности, комбиновање методологија, корпоративна друштвена одговорност.

## INTRODUCTION

In modern enterprises, managers are rarely faced with laboratory, structured problems, and more often with the management problem situations, which are complex, interactive, dynamic and ambiguous system problems. Those are the problems of the real world that can be explored through two key dimensions: *the systems dimension*, concerning the relative complexity and *the participants dimension*, which explores the relationship between individuals and groups, related to problem situation (Petrović, 2013, 102).

Different systems methodologies can be applied in order to creatively deal with problem situations. However, considering the *critical awareness*, as one of the fundamental commitments of critical systems thinking, it can be concluded that no systems methodology is so much “powerful” that can encompass all relevant aspects of the examined problem situation, i.e. each of them has its advantages and disadvantages, possibilities and constraints. Exactly the shortcomings of independent use of systems methodologies provide space for their combined use, thereby increasing the effectiveness of their use.

There are different ways of combined use of systems methodologies, such as *methodological isolationism*, *paradigmatic isolationism* and *mixing methodologies from different paradigms*. (Mingers & Brocklesby, 1997, 491).

The combined use of the methodologies can be implemented in different orders, as follows (Mingers, 2001): *sequential type*, *parallel type*, *imperialistic type*, *multimethodology* and *multilevel combining*. In this paper, we apply the imperialistic type that implies the use of one method or methodology as the main approach, with the support of other (s).

In line with the previous discussion, the *subject* of research in this paper is a combined use of the Soft systems methodology (SSM), which

belongs to the interpretive paradigm, and the Complexity methodology (CM), as a functionalist systems methodology, in structuring the management problem situations.

The *aim* of the research is to show that the combination of the above methodologies eliminates certain disadvantages of their independent use in the management of problem situations in companies, as well as to point out the possibilities and limitations, advantages and disadvantages of their combinations.

In accordance with the identified problem area, the object and aim of research, we defined the following fundamental *research hypothesis* - if the SSM is implemented as dominant, and the CM, as a methodology of support in managing problem situations in enterprises, certain shortcomings of their independent application will be eliminated.

Bearing in mind the subject, aim and the hypothesis of the research, we applied relevant scientific methods. Critical systems thinking (CST) is used as a conceptual framework for understanding the assumptions, conditions and ways of combining the methodologies. Key CST commitments are (Jackson, 2003, 281-284): critical awareness, social awareness, emancipation and pluralism at the level of theory and methodology.

For consideration in this study, the *critical awareness* is crucial. It implies the need for a critical review of the theoretical foundation of the system methodologies and helps to understand both their strengths and weaknesses, as well as to investigate the usefulness of different system models, methods, instruments and techniques. Also, *pluralism* is reflected in the recognition of the different perceptions and interpretations of research problem situations, as well as combining different systems methodologies, methods, models and techniques for structuring problem situations in companies and solving problems. Their use in a way that enhances the ability of researchers/managers to creatively deal with complex and various problem situations in organizations, results in continuous improvement of interventions in problem situations (Petrovic, 2012).

In addition, the analytical scientific method is applied in order to explore each methodology independently and to examine their specific features. However, the application of the analysis implies the necessity of synthesis, in order to observe isolated parts within the continent to which they belong, taking into account their interconnections and relationships. We also used the deductive and inductive methods, and methods of abstraction and concretisation.

The paper is structured in several interrelated parts. After the introduction, a brief literature review is provided. In the second part, the key theoretical and methodological foundations of the SSM and CM are elaborated, based on which we identified their strengths and weaknesses

in the management of problem situations. Starting from these findings, the basic assumptions, conditions and a possible combined use of these two methodologies is explained. The next part of the paper is an illustration where the combined use of SSM and CM is represented in the case of management of corporate social responsibility (CSR) of the hypothetical ABC company. Afterwards, the critical review, i.e. the advantages and disadvantages of using these methodologies in combination, is provided. Finally, certain conclusions about the research problem area are derived.

### *LITERATURE REVIEW*

In the last decades, a number of different methods and techniques have been developed, which can be applied for dealing with hard and well-structured, or soft, unstructured, complex management problems.

Various methods enable dealing with various problems and problem situations, but none of them is ideal, i.e. their individual application very rarely enables the inclusion of all relevant dimensions of the considered problem area. Therefore, a multitude of different methodologies and methods opens the possibility of their combined use.

Starting from the above, it is possible to identify different ways of the combined use of system methodologies in managing the problem situations in enterprises. If only one methodology is used in the context of a particular intervention in a problem situation, then it is the *methodological isolationism*. The use of different methodologies, which belong to the same paradigm, but in different interventions, can be termed *paradigmatic isolationism*. It is also possible to combine methodologies belonging to different paradigms. There are several ways to combine methodologies that belong to different system paradigms. The first method involves the combination of the overall methodologies, with one methodology dominant, and the other methodology of support. The other way is that one or parts of the methodology are incorporated into the other, while the third way involves the combined use of instruments of different methodologies, rather than full methodologies (Mingers & Brocklesby, 1997, 491).

The combined use of methodologies can be carried out in different order (Mingers, 2001), as follows:

1. sequential type - methodologies are used in a certain order, with the results of one affecting another
2. parallel type - methodologies interact with one another,
3. imperialist type - one methodology is dominant, and the other methodology of support,
4. multimethodology - combining different methodologies in one intervention,
5. combining at different levels of organization.

In exploring the application of multimethodology in practice, Munro & Mingers (2002) have come up with very important conclusions. First of all, the practice indicates that mixing methodologies provides better results than their individual application. The choice of the methods itself depends on the knowledge, experience and skills of the practitioner, the specific academic or organizational context, and the very nature of the problem itself. However, there are rare combinations of hard and soft system approaches in practice, and more often methods that belong to the same paradigm are combined. In this way, the understanding of the pluralistic nature of the problem situations is limited. For this reason, modern research seeks to provide a variety of paradigms, which shows the different perspectives the real world (Jackson, 2003).

By analyzing numerous case studies conducted in the period 1997-2008, the authors Howick and Ackerman (2011) come to the relevant knowledge of the combined application of methodologies in practice. One of the most important findings is the fact that the choice of methodologies and methods is predominantly dependent on the practitioners, which points to the necessity of collaboration of people who possess interdisciplinary knowledge when dealing with complex, multidisciplinary problems of Management Science.

A study by Henao and Franco (2016) has numerous theoretical and practical implications in the field of combined application of systemic methodologies. First of all, the emphasis is on the need to harmonize the different expectations of the researchers in the process of designing the intervention; gathering data before, during and after intervention, as well as comparing initial expectations with the impacts achieved in practice. The second essential knowledge refers to the discovery of the various influences of multimethodology on the personal, social and material domain of an intervention. Therefore, it is possible to take into account aspects such as stimulating participants in decision making or further improving their integrative behavior, in order to benefit in the designated intervention.

#### *KEY THEORETICAL AND METHODOLOGICAL FEATURES OF SSM AND CM*

##### *Soft Systems Methodology*

*Soft systems methodology* (SSM) is used when the subject of observation is a management problem situation with the properties of *pluralism* (*participants dimension*) and *complexity* (*systems dimension*). The important characteristic of problem situations that SSM deals with is their *ambiguity*. The problems of modern enterprises can be differently perceived and interpreted, and thus determined as a priority or not (Petrovic, 2010, 268). SSM seeks to encompass different perceptions of

reality, and ways of understanding the problems of the real world. Thus, the study of the concept of subjectivity is built into this methodology, and it is derived from the interpretive paradigm as its theoretical basis.

Other essential features of the SSM is related to the *assumptions about society and social systems* that are built into this methodology. Starting from the interpretative approach, the social system is seen as a continuous variable concept of roles, norms and values of the participants, in order to define a certain situations. The systems we face in the SSM originate from self-consciousness and genuine freedom of choice in selecting. To know these systems is not to describe them, but to use hermeneutics to interpret them (Huaxia, 2010, 159).

Even though there are different models nowadays (e.g. Checkland, 2000b), the representation of the SSM as a seven-stage cyclic, learning system, which appeared in 1981 in *Systems Thinking, Systems Practice*, is still frequently used. In this model, the first two stages include entry into the problem situation and the knowledge of it and its nature. These steps are necessary in order to make the first choices and design the relevant activities. Knowledge reached at these stages defines the so-called rich picture, which represents the problem situation and allows consideration of different choices. In this phase, concepts such as structure, process and climate of a situation are used. In stage three, it comes to the formulation of the root definitions, which reflect different ways of looking at the system. The root definition is a concise statement of what that (notional) system is in its most fundamental form (Jackson, 2003, 192), and they can be useful to explore the possibilities for change in problem situations, in order to improve it. There are two types of root definitions: those based on primary tasks and those that are based on certain issues that are currently important for the organization (Checkland & Wilson, 1980). Formulation of the root definitions is based on CATWOE mnemonic, which is made up of the following six components (Checkland & Tsouvalis, 1997, 156-157): C – customers, A – actors, T – transformation process, W – Weltanschauung, O – ownership and E – environmental constraints.

In the fourth stage, conceptual models of the system outlined in the root definitions are being built. Conceptual models are statements of activities that must be carried out in order to enforce changes and meet the requirements set out in the root definitions. Those are verbs that explain actions to be made. The next stage uses models in order to structure further review of the situation. Hence, the models are compared with the real world, and after that, it is possible to define desirable and feasible changes that can improve the situation. In the seventh stage, we take the actions to improve the problem situation. Thus, the change is implemented and it is possible to start the cycle again. Seven stages simply show the logical structure of the mosaic of actions, which make up the whole process (Checkland, 2000, 19), but it should be noted that this order of phases does not have to be strictly followed.

### *Complexity Methodology*

*The chaos and complexity theory* within the *chaos*, as one of the three relevant spheres of modern science, deals with management problem situation with the properties of complexity, disorder, irregularity, nonlinearity, randomness (Stacey, 1995; Stacey, 1996; Petrovic, 2005; Gharajedaghi, 2011). The complexity paradigm is holistic in character, and between the theory and practice, the complexity methodology, which offers practical support is embodied.

As for the *systems dimension*, the CM is appropriate for complex systems, such as modern enterprises. In addition, complex systems are understood through their relationship with the environment, so there is the need for managing constant exchanges between the system and the environment. Furthermore, systems do not simply adapt to their environments but coevolve with them. (Jackson, 2003, 118).

Regarding the *participants dimension*, the CM can be applied in those problem situations, in which participants share common interests, values and opinions. There is a high degree of consensus between them on the objectives and means, and all of them participate in the process of decision making and problem solving, acting in accordance with the objectives, so it is easy to reach a consensus.

Therefore, the CM is appropriate for *complex-unitary problem contexts*. There are six key theoretical notions in complexity theory (Jackson, 2003): sensitive dependence on initial conditions, strange attractors, self-similarity, self-organization, the edge of chaos and the fitness landscape.

The edge of chaos is a narrow transition zone between order and chaos that is extremely conducive to the emergence of novel patterns of behaviour (Jackson, 2003, 118). This transition is characterized by a paradox in which the archetypal behavior is being actualized through creative destruction, which occurs when the value of the control parameters are at critical levels (Petrovic, 2010, 418), thereby forming a space for creativity in complex systems.

Three main stages of applying the methodology of the chaos and complexity theory are (Jackson, 2003, 119-120; Petrovic, 2010, 422-423):

- Understanding the existing attractor pattern that determines the behavior of the current organization and identifying the reasons of its dominance. If, from the standpoint of the organization, the pattern is not desirable, there must be made appropriate changes to ensure that the system goes into another pattern;
- Change of the existing attractor pattern;
- Assuring the stabilization of new attractor pattern.

It is significant to understand that organizations can operate in a stable zone, unstable zone or the edge of chaos, which is a space for creativity and innovation. Therefore, managers should break from the

ideas that they can plan, organize and control every aspect of business and accept a certain form of chaos, encouraging self-organization.

Stacey (1996) outlines five *control parameters* that can be manipulated to ensure an organization remaining at the edge of chaos. These are: information flow, degree of diversity, richness of connectivity, level of contained anxiety and degree of power differential. (Jackson, 2003, 123). For an organization to achieve its potential, there must be an appropriate rate of the information flow about the changes in the environment, in order to activate both the legitimate system and the shadow system, but not too quickly when it overwhelms both systems. The diversity in the system should be such as to provoke learning, but not to cause anarchy. Relations between parts of the system should be sufficient to produce diversity, but not so large as to create a risk of instability. Also, they should be strong enough to create value, but not to prevent the formation of new connections. Some level of anxiety is needed to encourage creativity, or legitimate system must have certain ways to prevent it from becoming disabling. Between the extreme differences in power and even distribution of power balance has to be established, in order to, on the one hand curb anxiety, and on the other hand, maintain creativity.

*THE ASSUMPTIONS, CONDITIONS AND A POTENTIAL WAY  
OF THE SYNERGISTIC USE OF SSM AND CM*

The shortcomings of the CM mainly arise from the fact that the paradigm of complexity is based on the study of natural, physical and biological systems (Jackson, 2003, 128), so it is under-developed in the field of social systems, such as modern organizations, which do not always show chaotic behavior, but sometimes calm in stable condition of equilibrium. In the CM, the focus is on the systems dimension, while the pluralistic nature of problem situations, can not be effectively processed. Only if employees in a company share similar values and opinions, have common goals and easily achieve a consensus, which is very rare, it is possible to apply the CM alone effectively. Another limitation of the CM is reflected in the fact that it advises managers how to reach the edge of chaos, which makes an excuse for authoritarian action (Petrovic, 2010, 439). Also, the focus is on efficiency, while effectiveness is not disputed, but it is not so pronounced. However, there are exceptions when the CM seeks re-thought so that its concepts can be used in service of interpretivism, which creates the basis for combining with the SSM, based on interpretive paradigm.



On the other hand, the SSM is considered to be subjectivistic. The limits of participation are not clearly defined, but this methodology can not be used where power is concentrated for example at the top of the company. By character, the SSM is isolationist, i.e. learning cycle is treated as sufficient. It is idealistic, because it implies that only ideas and different conceptions of the social world can change the social world, whereby those ideas are not connected with the real situational circumstances present in the economy and society. It is significantly to point out the critique that representatives of the functionalist paradigm make to the SSM, which refers to the fact that this methodology ignores the fact that the systems, such as modern organizations must follow certain cybernetic laws and principles, i.e. must ensure that the systems of control and communication are adequately designed (Zlatanovic, 2015b, 85). This point refers to the need to combine the SSM with some of the methodology appropriate to the functionalist paradigm, in order to overcome perceived shortcomings.

However, the SSM is very applicative, as evidenced by numerous case studies. According to Checkland (2000), it can be helpful in problem situations in which it is important to identify and capture different views of stakeholders, extremely variable ideas and when participants hardly accept alternative views of reality. The application of this methodology in practice is proved to be particularly significant in the field of information technology, organizational design, performance evaluation, education, problem solving (Mingers, 2003; Mingers & Taylor, 2012).

In this paper, we argue that it is possible to remove some of the above limitations of both the CM and SSM and to utilize the relevant benefits of the two methodologies, by their synergistic use. In the combined use of interpretive and functionalist systems approaches, it was observed that better results are achieved when interpretative approach precedes the functionalist approach (Brown et al., 2006, 667). Therefore, the interpretational approach should be used in order to give the problem situation meaning and context in which we will apply the functionalist approach. Accordingly, the paper describes the application of the SSM, as dominant, and the CM as a methodology of support, as one of the possible ways of their combined use (Figure 1).

In order to approach the realistic management problem situations, the possible way of combining the SSM and CM is presented on an example, in the next part of the paper.

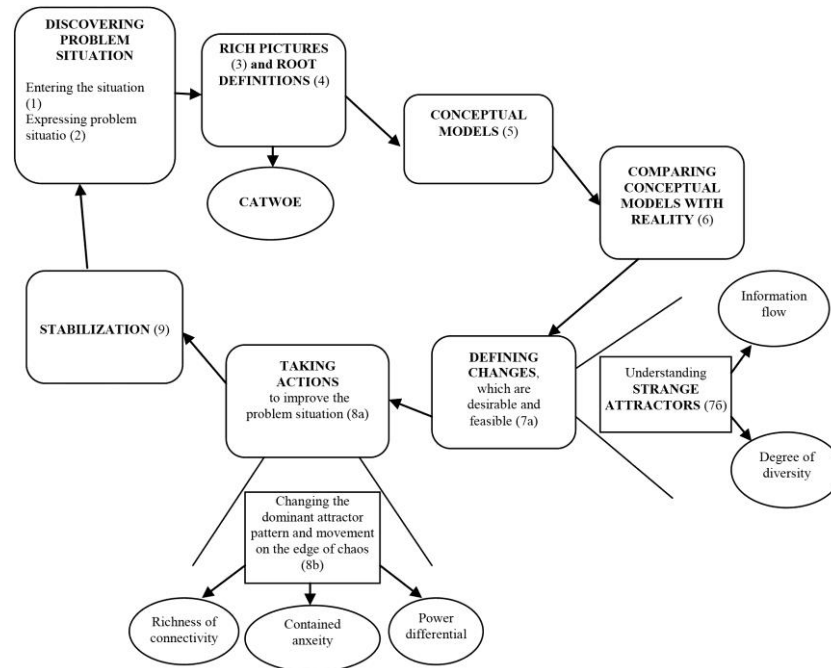


Figure 1. Combined use of SSM and CM

Source: Author

*THE ILLUSTRATION OF POSSIBLE USE OF THE SOFT SYSTEMS  
METHODOLOGY AND COMPLEXITY METHODOLOGY IN THE  
COMPANY*

One of the possible ways of combining the SSM and CM, which is described in the previous section, can also be illustrated in the hypothetical case of managing the corporate social responsibility (CSR) of ABC company, which seeks to contribute to creating a sustainable competitive position, by improving CSR.

Respecting the pluralistic features of the CSR concept, some studies have shown that SSM can be applied for the management of this problem situation (eg. Zlatanovic, 2015a). However, in order to adequately process the complexity of the problem situation, in this paper the SSM is used in combination with the CM.

In modern business conditions, profit maximization is not the only goal of the company, but it is necessary, in addition to the interests of owners, to take into account the interests of other stakeholders. Thus, social responsibility is an essential way of doing business in modern market-oriented companies. It is a concept which, besides economic objectives, encompasses social and environmental goals. In doing so, the

emphasis is on *voluntary character* or the fact that in addition to the required legal and economic dimensions, companies integrate ethical and philanthropic dimension in their operations. (Commission of European Communities, 2001a; Gibson, 2000; Carroll, 1991).

Despite numerous dilemmas related to the validity, importance and motives of the CSR (e.g. Dare, 2016; Devinney, 2009; Aguilera et al., 2007), which reflect the pluralistic character of the problem situation, studies show that the potential positive effects of social responsibility, even in a very long period of time, are significantly more cost-effective than any damage that may arise due to irresponsible behaviour, i.e. unjust relationships with key stakeholders, which can cause various scandals and, consequently, high costs. The benefits a company can achieve through socially responsible practices are reflected in the improvement of brand and image, attracting and retaining customers (Kotler & Lee, 2005), the improvement of human resource management (Koh & Boo, 2004), building a competitive advantage (Porter & Krammer, 2006), reduction of costs and risks (Kotler & Lee, 2005), attracting investors and, consequently, building long-term value. On the other hand, through the CSR, companies provide a contribution to the community and the entire economy, and its sustainable development.

According to the European Commission document which defines framework to promote the CSR - *Green Paper*, it is possible to distinguish two dimensions of the CSR, internal and external. Internal dimension covers four areas: human resources management, occupational health and safety, adapting to change and natural resource management in production. The external dimension is aimed at a wider range of stakeholders and includes: responsibility towards the local community, partners, suppliers, customers, human rights and environmental protection (Commission of European Communities, 2001b). In each of these areas, there are complex processes taking place, and each of the dimensions is characterized by high uncertainty inherent in social systems.

In the process of *discovering the problem situation*, it is possible to initially collect different ideas of the participants about a problem situation. At this stage, the participants (managers, employees) express their views on corporate social responsibility. Most often there are conflicting views on the reasons for and against the concept of CSR, as well as on the understanding of corporate social responsibility as an investment or as a cost. Also, there are questions about the real motives of the CSR, which may be related to the economic benefits of this way of doing business, philanthropy, obligations accepted by adopting certain standards and the like. In addition, it is necessary to identify the main areas and activities of the CSR, key stakeholders and the links between them. The roles of employees in the process of corporate social responsibility are being defined, as well as norms of behavior, values and power relations.

In order to adequately express the problem situation, we created the *rich picture* (Figure 2), which presents the relevant stakeholders (owners, management, employees, customers, partners, representatives of local communities and representatives of organizations for the environmental protection) and the main aggregates (supply, production, sales, marketing, finance and accounting).

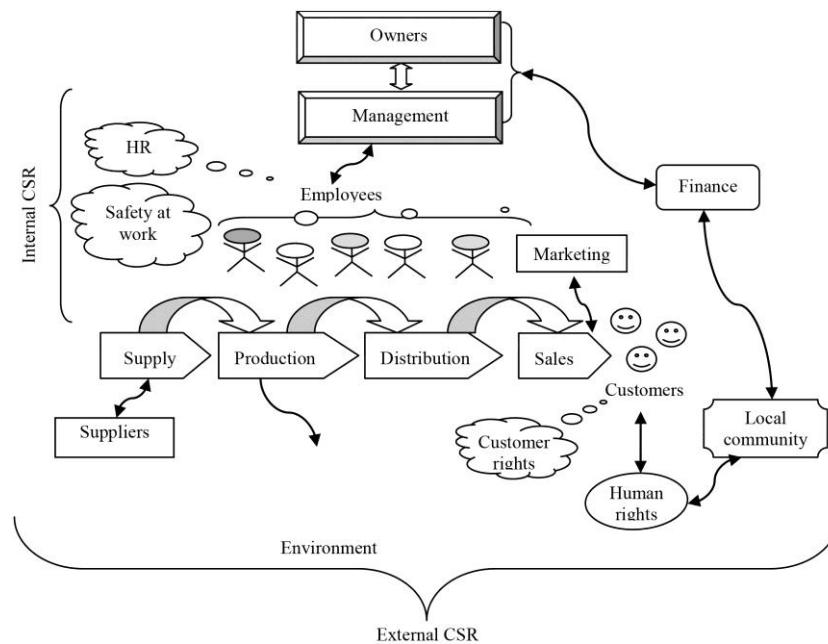


Figure 2. Rich picture: CSR in ABC enterprise

Source: Author

In order for to knowledge, reached in the previous stages, to be concisely expressed verbally, we developed the root definition. First, starting from theoretical knowledge about the concept of corporate social responsibility, as well as areas and activities of the CSR, as defined by international guidelines (Commission of the European Communities , 2001), we applied the CATWOE mnemonic, so that the management of the CSR in the company ABC is presented as follows:

**C** – ABC company, society as a whole

**A** – Management and employees in ABC company

**T** – The necessity of creating sustainable competitive position → implementation of CSR concept → sustainable competitive position

**W** – CSR is not a cost, but an investment.

**O** – Employees and management in ABC company, that do not have highly developed awareness about CSR importance

**E** – (Un)available resources, legal restrictions, adopted international quality standards

Starting from the CATWOE analysis, a relevant system can be developed into the root definition, as follows: *Corporate social responsibility involves a series of activities concerning human resource management, health and safety at work, adapting to change and management of natural resources within the internal dimension, as well as responsibility to the local community, partners, suppliers and consumers, human rights and environmental protection in the context of the external dimension, through which the company voluntarily provides a contribution to society and the environment, while achieving profit that provides a sustainable competitive position, but also many other benefits for all stakeholders.*

In accordance with the root definition, we formed the conceptual model (Figure 3), which includes activities that the ABC company must implement to successfully manage corporate social responsibility. The model presents the following activities:

1. developing awareness of the CSR to the management and employees,
2. identifying the key CSR areas within the internal and external dimension,
3. defining the activities in each CSR area,
4. defining the roles of individuals and groups in the process of implementing the activities,
5. providing support for CSR implementation,
6. defining efficiency and effectiveness criteria,
7. monitoring and control of 1-5 and
8. taking corrective actions.

The conceptual model shows the idealized course of action that the company ABC should implement in order to meet the requirements specified in the root definition. However, as the model never reflect the reality completely, it is necessary *to compare the model with the real situation*, in order to determine significant differences. The aim is to initiate the discussion about the changes which should improve the problem situation. First of all it is possible to organize a group discussion in which members of top management and a researcher should participate. The informal discussion leads to conclusions about the areas in which we should expect major differences. These findings facilitate the further course of the research. In order to obtain precise information, it is possible to carry out a survey in the company and/or a sample that consisted of various stakeholders. The survey may be carried out in person, by telephone or electronically, using a questionnaire containing questions about the understanding of the significance of the concept of CSR, about the activities within the internal and external dimensions of the CSR and the effects of these activities on the

business results of the company. The data obtained from the survey should then be processed using the statistical software. Based on the results, the conclusions about the differences between the conceptual model and the real world may be deduced.

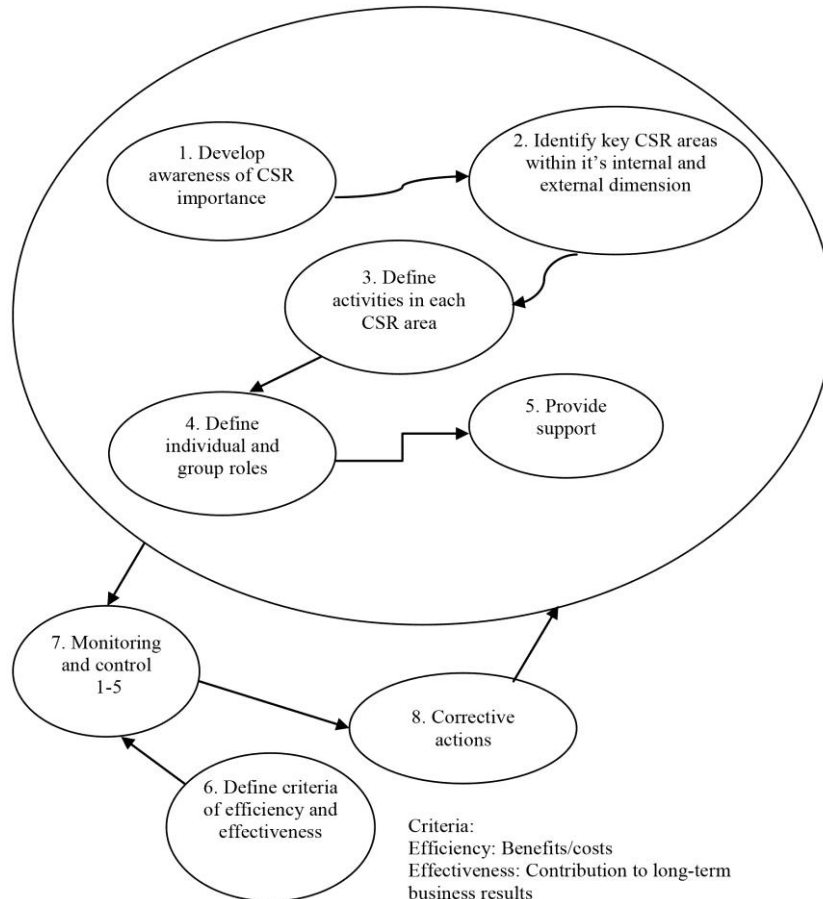


Figure 3. Conceptual model: System of CSR in ABC enterprise  
Source: Adapted according to Zlatanovic, D. (2015a). A Holistic Approach to Corporate Social Responsibility as a Prerequisite for Sustainable Development: Empirical Evidence, *Economic Annals*, 60(207), 78.

Starting from the results of the research, it is possible to identify the CSR areas where the activities of the ABC company deviate substantially from those covered by the conceptual model, which is the basis for **defining the changes in managing corporate social responsibility**. Management must take into account the fact that changes have to be systemically desirable and culturally feasible.

At this stage, it is possible to apply the CM, and its first phase, which refers to the *understanding of strange attractors*, which define the current behavior of the organization. Specifically, we define the reasons why the company did not sufficiently develop certain CSR areas, and that can be, for example the lack of awareness of the CSR importance, the lack of financial and other resources, the lack of motivation of employees to engage in voluntary social responsibility activities, the lack of a strategic approach to CSR and the like. In order to understand the forces that prevent the development of the CSR, systemic learning is important because it allows managers to understand that change is inevitable and it helps them to define the changes adequately. For example, if the study showed a low level of responsibility to the local community, at this stage we can come to the conclusion that the main reasons for this lack of financial resources and lack of motivation of employees to work on these activities. Based on this information, it is possible to define ways of providing financial sources for investments in activities that contribute to the local community (eg. sponsorship in sport, culture, education, etc.) and to develop strategies to motivate employees to participate in the same. Thus, it is necessary to determine the ways to eliminate the restrictions and improve the current situation. In doing so, it is very important to exchange information between the company and the environment at an appropriate rate, as well as to understand the differences among the participants in the problem situation, which enables learning.

Once you have defined the necessary changes in the dominant pattern of attractor, *action is taken* to improve the problem situation. In this stage too, the CM may be used to determine which way it is possible to achieve the transition from one attractor to another and how small changes (eg. the responsibility of the local community) can be used to create large results (sustainable competitive position). It is significant that managers are aware that the process of creating a sustainable competitive position requires continuous improvement and innovation, both in the field of the CSR, as well as in other activities, bearing in mind that no part of the organization is functioning independently and in isolation from the others, but there are many interrelations between the parts of the company, as well as between the parts and the whole. Therefore, the CSR management involves constant transformation and movement on the edge of chaos. As explained above, the movement on the edge of chaos enables creativity and development, and in order to make that possible constant learning is necessary. When managing a socially responsible business, managers must encourage teamwork and knowledge sharing between employees.

In order to operate at the edge of chaos, it is essential that there is an appropriate level of anxiety, which must be appropriately controlled by the legitimate system, with the existence of an appropriate balance in the distribution of power. At this stage, the role of a leader is very important.

A leader must behave in a way that is not completely autocratic, or even quite liberal, but to a great extent has the characteristics of a democratic style, so that on the one hand encourages the initiative of subordinates, but on the other hand retains a certain level of power, to provide guidance and coordination while performing tasks (Stojanovic-Aleksic, 2007, 65).

Proceeding from the control parameters of the CM, namely richness of connectivity, levels of contained anxiety and the degree of power differential, it is possible to propose, as one of the possible ways of organizing the CSR in the company ABC, to create a matrix organizational structure. In this kind of organization, each of the CSR initiatives would be organized as a project, whose implementation would be conducted by employees from different functions, who together with the leader of the team create a project team. Due to the high diversity among team members, in terms of characteristics, but also the knowledge, skills and abilities, since they come from different functions and are specialized to perform different tasks, there is an exchange of knowledge and ideas that generate learning, which leads to greater effectiveness in performing tasks.

When working in matrix teams, a balance in the distribution of power is achieved, because the authority is delegated to employees in a certain extent, which encourages creativity, but certain control by the legitimate system is achieved through the role of the team leader. In addition, the essential characteristics of matrix structure are flexibility, which is reflected in the fact that the membership of the team variable and temporality, which refers to the fact that employees at the end of each project, return to their home department and/or in other team(s). In this way, it is possible to control the richness connectivity, as well as the level of contained anxiety.

Finally, through mutual work, certain rules are formed, related to the way of managing corporate social responsibility, which are used in every subsequent situation, so it comes to the *stabilization of a new attractor*. However, it is important that the system does not lock the organization, in the long term, into routine forms of action (Jackson, 2003, 120), but that it remains open to the emergence of self-organization. Thus, this is a circular process that requires constant return to the initial phase and follow-up all relevant parameters which lead to the preferable state of the edge of chaos. In this sense, it is not desirable to create a rough organizational structure based on formalization, centralization and hierarchy, but a more flexible structure, with the characteristics of organic design, which allows easier adaptation to changes.



*CRITICAL REVIEW – ADVANTAGES AND DISADVANTAGES OF  
A COMBINED USE OF THE SSM AND CM*

Due to its numerous advantages, the SSM is very applicable for dealing with problems of management and business economics. This systems methodology enables realization of the various participants' perceptions of the problem situation, in order to build a debate that will lead, if not to the creation of common perception, then at least to the adaptation of different viewpoints and interests, so it is possible to implement the desired changes. On the one hand, the SSM provides an extremely "powerful" methods, such as rich images, root definitions and conceptual models, but on the other hand does not require that each of them is used or used in the same way in each intervention. Because of its flexibility, it is suitable for a combined use with other methodologies.

The application of the SSM provides an effective coverage of pluralist nature of problem situations, while the CM deals with complexity, chaos and unpredictability, which are the essential characteristics of these problems. In fact, the SSM provides a context and understanding of the situation in which the CM helps to build adequate organization, which will move to the edge of chaos. It will maintain stability, to some extent, but encourage learning and creativity in sufficient quantity that the system is able to develop continuously. It insists on exploring the interior of the system in order to detect the relevant features of its design, which allows the system to adapt and develop in a turbulent environment. While the SSM helps the understanding of the practical interest, the CM compensates for its lack of interest in dealing with the technical interest for prediction and control of social systems. The CM uses control mechanisms and allows functioning on the edge of chaos, while facilitating planning and control of the short-term results. Specific long-term results of business can not be planned, but managers can understand the patterns of behavior that the organization manifested through self-organization.

However, the common disadvantages of the SSM and CM can not be overcome by their combined use. In fact, neither of these methodologies is not up to dealing with problem situations with the characteristics of conflict and coercion, thus the emancipatory interest still did not receive sufficient attention. These methodologies are not appropriate for problem situations characterized by coercion where the participants are in the conflict and a compromise is not possible. Also, they do not deal sufficiently with issues of power, neither with liberation of subordinate individuals and groups from the effects of power. Therefore, their combined use will still be in the interests of those who hold power. This limit could be remedied by an inclusion of an emancipatory and postmodern systemic approach.

A specific limitation of the combined use of methodologies is the so-called paradigmatic incommensurability. Problem of *paradigmatic incommensurability* means that “a group of scientists, who rely on different paradigms, when watching from the same point and in the same direction, will see different things” (Kuhn, 1962, according to Petrovic, 2004, 164). This problem is particularly pronounced when combining methodologies from hard and soft paradigms, between which there is a significant objectivist/subjectivist ontological and epistemological dichotomy. Therefore, it is considered that the paradigms are self-sufficient, internally referent and mutually exclusive (Zlatanovic, 2015b, 55). Besides the philosophical aspects of the problem, which refers to the paradigmatic incommensurability, there are several limitations of combining methodologies relying on different paradigms, namely: cultural (the degree to which the culture does not support the combination of methodologies), cognitive (difficulty that individuals face in the transition from one to the another paradigm) and practical (extension of time to deal with the problems, the lack of experience in using various methods, and the like) (Mingers & Brocklesby, 1997).

Nevertheless, newer approaches criticize this view, suggesting that it is an exaggerated attitude and that there are so-called transitional zones that create connections between paradigms. Kotiadis & Mingers (2006) point out that the paradigmatic incommensurability does not constitute a barrier to combine systemic methodology. In fact, it is possible to apply the so-called interplay strategy, with mutual influence, appropriate for the use of different paradigms. The *jing-jang* represents an adequate metaphor for this approach. Multimethodology involves combining hard and soft methods, whereby within the hard method, there are soft elements and vice versa. Thereby, individual knowledge and experience affect individual access to interventions in general, and especially in multimethodology. Certainly, this area is open to further research in order to perform more precise conclusions.

### CONCLUSION

Starting from the research problem area and asserted goals, the paper presents a possible model of the combined use of the Soft Systems Methodology, as part of the interpretive paradigm, as the dominant system approach and appropriate functionalist Methodologies of chaos and complexity theory (Complexity methodology), as a methodology of support. It is a continuous series of activities that begins by discovering the problem situation. In the early stages, the SSM has a dominant position in terms of allocating context or the perspective of the problem situation, which allows the processing of participants dimensions adequately. The key stages in which the CM provides support are the phase of defining changes, taking

action and stabilization. In these phases, the CM enables understanding the interior of the complex, nonlinear feedback systems, such as modern organization and helps to solve problems on the edge of chaos. The stabilization of the new attractor pattern is not the end of the learning process, because the system remains open for self-organization.

The paper explains how certain limitations that arise when the methodologies are applied independently can be eliminated through a combined application of the SSM and CM. Hence, the main research hypothesis is confirmed.

The paper provides a significant *contribution* to the study of important issues in *Systems science* and *Management science*, such as the possibility of combining different systems methodologies, particularly the methodology belonging to different paradigms. It presents the assumptions and opportunities, as well as the possible way of combining two methodologies in the management of problem situations in companies so that they can adequately handle their complexity, dynamism and ambiguity. It also points out the sequence of steps of applying appropriate methods and discusses their benefits for the managers. Special contribution is reflected in illustrating the synergetic use of the SSM and CM in the management of corporate social responsibility, which emphasizes the practical significance of this ways of use of the methodologies.

Finally, it is useful to point out the *limitation* of the paper, as well as the *recommendations for future research*. Namely, it elaborates only one of several possible ways of combining the SSM and CM, which leaves room to explore other ways in future research. In addition, the paper does not include empirical verification of the effectiveness of the combined application of the methodologies and it would be useful to implement this idea in a case or a sample of the real company/companies. In addition, in the future it is possible to include in combination some of the emancipatory paradigm methodologies, in order to allow for the consideration of various issues related to power relations and coercion in organizations.

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## **КОМБИНОВАНО КОРИШЋЕЊЕ МЕТОДОЛОГИЈЕ СОФТ СИСТЕМА И МЕТОДОЛОГИЈЕ КОМПЛЕКСНОСТИ: ПРИМЕР УПРАВЉАЊА ДРУШТВЕНОМ ОДГОВОРНОШЋУ ПРЕДУЗЕЋА**

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### **Резиме**

Критичко системско мишљење представља концептуални оквир за разумевање претпоставки, услова и начина комбиноване употребе методологија. Једна од његових кључних обавезаности – критичка свесност – указује на чињеницу да свака методологија има своје снаге и слабости, те стога ниједна од њих не омогућава обухватање свих релевантних одређења комплексних, динамичних, интерактивних и вишезначних управљачких проблемских ситуација. Управо зато, неопходна је синергијска употреба системских методологија у циљу креативног бављења управљачким проблемским ситуацијама.

У циљу истраживања управљања друштвено одговорним пословањем, као комплексно-плуралистичким проблемским подручјем, могуће је применити Методологију софт система, као доминантан системски прилаз, и Методологију теорије хаоса и комплексности (скраћено: Методологија комплексности), у оквиру функционалистичке парадигме, као методологију подршке. МСС пружа контекст и опредељује перспективу посматрања проблемске ситуације, обрађујући њену плуралистичку природу, док МК омогућава разумевање унутрашњег окружења комплексних, нелинеарних feedback система, какве су савремене организације и помаже да се проблеми решавају на рубу хаоса.

Могући начин комбиноване примене ове две методологије у бављењу проблемом друштвене одговорности предузећа започиње **откривањем проблемске ситуације**, а наставља се грађењем **богате слике** и формулисањем **изворне дефиниције**. Након тога, приступа се дефинисању активности неопходних како би се испунили захтеви назначени у изворној дефиницији. Ове активности представљене су у оквиру **концептуалног модела**. У наведеним фазама, МСС има најзначајнију улогу. Имајући у виду немогућност потпуно доследног одсликавања реалности у моделу, **модел се затим пореди са реалном ситуацијом**. Уочене разлике представљају основу за **дефинисање промена у управљању друштвеном одговорношћу предузећа**. Кључна фаза у којој МК пружа подршку МСС јесте **предузимање акције** за унапређење проблемске ситуације, и то путем **разумевања доминантних образаца атрактора**, који одређују текуће понашање организације. Наиме, дефинишу се разлози због којих предузеће није у довољној мери развило одређена подручја примене ДОП-а како би се утврдили начини за отклањање ограничења и унапређење ситуације.

Менаџери морају бити свесни да процес стварања одрживе конкурентске позиције захтева стална унапређења и иновације, непрекидну трансформацију и кретање на рубу хаоса. У овој фази, треба обратити пажњу на примену адекватног стила лидерства, који охрабрује организацију да остане на рубу хаоса, као и адекватне организационе структуре која то омогућава. Реч је о неком од флексибилних организационих модела, као што је матрични модел. Оваква структура омогућава **стабилизацију новог атрактора**, остављајући простор за самоорганизацију, али без затварања у рутинске форме деловања.

Упркос бројним предностима које се остварују синергијском употребом МСС и МК, а тичу се разматрања комплексности и вишезначности бављења управљачким проблемским ситуацијама, неопходно је истаћи да ове методологије нису примерене бављењу еманципаторним људским интересом, везаним за ослобађање од дејстава моћи, што је веома значајно својство многих ситуација у предузећима.